

Date: Tue, 30 Aug 94 04:30:13 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #287
To: Ham-Ant

Ham-Ant Digest Tue, 30 Aug 94 Volume 94 : Issue 287

Today's Topics:

 5/8 wave 2M for 70 cm?
CT:Power Handling of Coax vs. SWRŸZL>Message-ID: <1994Aug25
CT:Re: How do I check my swr meter ?MI>> If you want to ge
 Design for wide band antenna - 3 to 30 MHz?
 Log Periodic Design Info Request
 Question about guyed towers on wooded lots.
 Rooftop HF Towers
 SG-Smartuner (2 msgs)
 WANTED:SMALL QUAD

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 29 Aug 1994 13:20:34 GMT
From: agate!library.ucla.edu!europa.eng.gtefsd.com!uhog.mit.edu!news.kei.com!
ssd.intel.com!chnews!sedona!jbromley@ames.arpa
Subject: 5/8 wave 2M for 70 cm?
To: ham-ant@ucsd.edu

In article <330gm2\$d79@news.cc.oberlin.edu>,
<pruth@ocvaxa.cc.oberlin.edu> wrote:

>I already have a Radio Shack discone on the
>roof to which I added a 47" whip to improve
>its low VHF reception on my scanner. The
>added element, I think, is a 5/8 wave 2M
>whip.

47" is about 5/8 wavelength on 2 meters.
However, you also need an inductor in series
with it to match it to 50-ohm transmission
line.

> I expect it'll work very well on 2M
>transmitting, but I wonder if such an
>element will be a problem when transmitting
>on 70 cm--can I expect a serious mismatch,
>high SWR, a deep-fried HT, or will it maybe
>actually work well?

It will work well. The "discone" elements do
the radiating above about 100 MHz and continue
to function well up to 1000 MHz.

> The Diamond discone
>has a base-loaded element on top which gives
>it true 25-1300 reception, and it purports to
>be okay to transmit through, up to 200 Watts
>on 2M, 220MHz, 70 cm, and 902 also. How can
>this be?

The base-loaded element actually only covers
the bottom end of the range, from 25 to 50 MHz.
And not very well, I might add. The discone
itself starts working at 100 MHz.

The discone belongs to the class of frequency-
independent antennas that are characterized by
having all of their dimensions specified as
angles. These antennas have a lower cutoff
frequency below which they have a high VSWR
(ie: they don't work) but no inherent upper
frequency limit. Your Diamond discone would
work at 10 GHz if the manufacturer had
maintained the "equal-angle" geometry down
to within millimeters of the feedpoint.

Also implied in your question (I think) was
a bit of confusion about the equivalence of
transmitting and receiving antennas. It is
usually stated that a good transmitting antenna
makes a good receiving antenna. But in this
case, the converse applies - the good receiving
antenna that the discone provides also means
that it works well for transmitting.

Having said that, I must immediately follow with a couple of caveats. First, a receive-only situation can tolerate the additional losses a higher SWR implies *much* better than a transmitter can. The discone has a good, low SWR from its cutoff frequency on up, but this isn't generally true of all scanner antennas. Secondly, and this is where the power limitation on the discone comes from, the amounts of current and voltage a transmitting antenna must handle are much greater than those for a receive-only antenna.

Finally, the discone exhibits relatively low gain over its wide operating frequency range. It is OK for local, repeater work, but is far from ideal when antenna gain is required for longer distances.

Jim Bromley, W5GYJ <jbromley@sedona.intel.com> (My *own* opinions)

Thanks for your expert advice.
>--Bill Ruth, Oberlin, Ohio pruth@ocvaxa.cc.oberlin.edu

Date: Sun, 28 Aug 1994 21:52:49 GMT
From: psinntp!arrl.org!zlau@uunet.uu.net
Subject: CT:Power Handling of Coax vs. SWRŸZL>Message-ID: <1994Aug25
To: ham-ant@ucsd.edu

Forrest Gehrke k2BT (forrest.gehrke@cencore.com) wrote:

: ZL>As someone has commented, none of the ARRL publications really
: ZL>go into depth on the power handling capabilities of coax.

: ZL>Thus, for the parameters I mentioned, it ought to be possible
: ZL>to calculate a graph of maximum power versus time, much like
: ZL>the graph on the old Heathkit Cantennas. A standard temperature
: ZL>and pressure could be assumed.

: Your question puzzles me. Of what value would such a graph be?
: Obviously the situation being measured is so lossy as to be
: a useless means of transmission of power to a load, as so little
: of it would be expended there.

There are two uses. One, a series of such graphs can be used to educate amateurs about how coaxial cables work. What really are the failure mechanisms? Secondly, amateurs with EME stations are often forced to use less than ideal cables. I'm sure that Paul Wilson would love to have a full run of 1 5/8 inch Heliax from his 300 watt 2304 amplifier to his dish feed. But, it just isn't practical.

250 or even 400 watt 2 meter amps aren't rarities anymore. I would imagine that someone has tried using RG-58/U with poor results :-).

People also ask if they really have to get new feedline when they get a 1500 watt HF amplifier. Replacing feedline immediately isn't always practical--not everyone lives in a place with beautiful weather all the time.

: Furthermore, this situation anticipates such a high loss
: that I would expect to have exceeded the voltage handling
: of the coax before general melting would have begun.

Huh? Wouldn't a lossy cable tend to prevent high voltages from developing?

--

Zack Lau KH6CP/1 2 way QRP WAS
 8 States on 10 GHz
Internet: zlau@arrl.org 10 grids on 2304 MHz

Date: Sun, 28 Aug 1994 20:58:55 +0000
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!wupost!udel!
news.sprintlink.net!demon!arkas.demon.co.uk!Michael@network.ucsd.edu
Subject: CT:Re: How do I check my swr meter ?MI>> If you want to ge
To: ham-ant@ucsd.edu

In article <6e.1777.719.0N6668F0@cencore.com>
forrest.gehrke@cencore.com "Forrest Gehrke" writes:

> Your test of SWR meters is a good start--and it will eliminate some
> of the more defective designs. However your test is still an easier
> one, being a pure resistance load. Using a Smith chart or a computer
> matching program to calculate what the impedance will look like (and
> expected SWR), place your 25 ohm load at the end of a length of a few
> feet of transmission line so that some significant reactance will be
> present. You will find still more SWR meters which can't cut the
> mustard. These latter help to promote the mistaken belief that adding

> or subtracting a few feet of coax can change SWR readings.

I didn't try this one - perhaps I should have! Assume that any coax between the 25 Ohm box and the meter under test exhibits low loss at the frequencies of interest, and the VSWR will still be 2:1 irrespective of the length. However, if there are meters out there which show different VSWR's for different lengths, then I'm not surprised that some think that changing the line length significantly changes the VSWR (again, assume low loss coax).

Is this result due to a problem with these designs not being able to handle currents / voltages resulting from partially reactive loads at the "ANT" port?

73's

--

Mike Dower

G0VEY

'Quoth the raven, "Never more".' ... Poe

VK2ENG

Date: 28 Aug 1994 21:11:38 GMT

From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!asuvax!chnews!scorpion.ch.intel.com!
cmoore@network.ucsd.edu

Subject: Design for wide band antenna - 3 to 30 MHz?

To: ham-ant@ucsd.edu

In article <jakes.23.000BCBDE@norton.ctech.ac.za>,
<jakes@norton.ctech.ac.za> wrote:

>

>I am looking for a design for a wide band HF antenna with a reasonably low
>loss in comparrison to a dipole. >Greg ZS1GD

Hi Greg, I am very satisfied with my 88 ft centered dipole. I feed it with 300 ohm ladder-line using a 4/1 balun and an antenna tuner. It loads 80m-10m, good for "local" on 80m and 40m because it is only 30 ft high. But on 20m it has about 9 dbi broad-side lobes and an 8 dbi cloverleaf pattern on 17m. With those patterns I can hit most of the land masses in the world on the best two present DX bands. My signal into Australia on 20m rivals (in 'S' units) a two-element Yagi and everything outside the shack cost \$30... who cares if it blows down?

73, Cecil, KG7BK, 00TC (Not speaking for Intel)

--

Intel, Corp.

5000 W. Chandler Blvd.

Chandler, AZ 85226

Date: 28 Aug 1994 19:47:34 GMT
From: ihnp4.ucsd.edu!swrinde!pipex!sunic!trane.uninett.no!eunet.no!nuug!EU.net!
Germany.EU.net!news.dfn.de!news.belwue.de!news.uni-stuttgart.de!
deap1032@network.ucsd.edu
Subject: Log Periodic Design Info Request
To: ham-ant@ucsd.edu

Hi Chris,

The RSGB's VHF-UHF manual has information on this, both ldpa's and log-periodical/yagi hybrids (like some US tv antennas). I think that for 20% bandwidth the best are yagi antennas, which can be optimized for increased band width, by having a pronounced taper in director lengths.

73, Moritz DL5UH

Date: Mon, 29 Aug 1994 17:38:50 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!udel!gvls1!rossi@network.ucsd.edu
Subject: Question about guyed towers on wooded lots.
To: ham-ant@ucsd.edu

I am in the process of putting up 70 feet of Rohn 25. While not exactly a true "wooded lot" my backyard has several 50 foot tall maple trees along the rear property line. I would estimate that these trees are about 20 years old. The trunks are about 8-12 inches diameter at the base. They tend to just blow around a bit in heavy wind and I doubt that one would totally come down unless we had hurricane force winds. In the 10 years that I have been at this location I have never had any problems with them other finding lots of small branches all over the backyard each spring.

The tower will be guyed 4-ways and 3 of the guys will pass very close to tree trunks and in one case it will need to pass through a dense group of branches. I expect to do some serious tree pruning when the tower goes up but I wonder if this will be enough since even if a particular tree trunk/branch/etc is normally several feet away from a guy, during high winds and/or heavy ice there is always the possibility that it could come into brief or extended contact with a guy. Worst case, there is always the slight possibility that a tree could come down across one of the guys.

I am planning to use Phillystran guy cable and this has me concerned since I have heard that Phillystran is not very resistant to abrasion compared to steel cable. I guess my question is just how resistant is Phillystran to occasional

abrasion from small tree limbs? Is it feasible to cover the guy with some kind of protective sleeve in areas where contact with a tree branch is possible during high winds?

Should I :

1. Proceed with my original plan to prune/trim/cut nice clear wide paths through the tree branches and hope for the best? This would require periodic trimming to keep the path clear. Would probably require someone to come in with a bucket truck to get up there to do it right.
2. Abandon the Phillystran and just go with plain old 3/16 inch steel cable? I am looking forward to using the Phillystran since my lot is small and I will need to rely on wire antennas for the low bands and it will be nice not having a lot of metallic guys in the way. I would also like to experiment with loading up the tower on 80 or possibly 160.
3. Cut down all/most the trees :-(Don't really want to do this.

Is this really a serious problem or am I just being over cautious?

Pete Rossi - WA3NNA
rossi@vfl.paramax.com
Unisys Corporation - Government Systems Group
Valley Forge Engineering Center - Paoli, Pennsylvania

Date: Mon, 29 Aug 1994 09:10:59
From: ihnp4.ucsd.edu!swrinde!gatech!udel!news.sprintlink.net!news.world.net!
news.teleport.com!ip-aa.teleport.com!newmedia@network.ucsd.edu
Subject: Rooftop HF Towers
To: ham-ant@ucsd.edu

I'm interested in hearing from anyone on the subject of rooftop mounting of tribanders. I've got an old house whose pitched roof stands 50 feet high on a 50 x 100 city lot. There's no real good place to put a ground mounted tower and still guy it within my property lines. The solution - I think - is a roof mounted tower. But there is practically no mention of roof mounted towers in the various ARRL antenna publications. And there is only one product I've seen advertised (Create, CR series) that puts a small support on a rooftop.

Are there reasons for this scarcity of information? Am I rushing into a solution where only fools would go? What am I missing here? Grounding? Structural support? Safety? Performance?

I'd welcome any comments.

Date: Sun, 28 Aug 1994 18:15:57 GMT
From: ihnp4.ucsd.edu!galaxy.ucr.edu!library.ucla.edu!csulb.edu!csus.edu!
netcom.com!greg@network.ucsd.edu
Subject: SG-Smartuner
To: ham-ant@ucsd.edu

In article <33j02t\$a1j@kantti.Helsinki.FI> mjokinen@cc.Helsinki.FI (Matti Jokinen) writes:

>Matti Jokinen (mjokinen@cc.Helsinki.FI) wrote:

>: QST reported the SG-230 Smartuner to be a good choice for an automatic
>: tuner. I am thinking of using it with an IC-735 rig and 15' backstay
>: longwire as the antenna in a sailing boat. Does anyone has experiences
>: of a similar installation or of that tuner in general?

>

>Excuse the error, the length of the backstay is 15 meters, not feet. One
>advisor says to keep it as long as possible and another points out that
>it should be insulated well above the deck (a crew member touching it
>would interfere the radiation). Could she burn her hand when touching
>it? If the insulator is put shall we say about 7' above the deck, with
>which kind of a lead it is connected to the tuner (which is just under
>the deck)? Is a normal plastic covered lead safe (to the hands I mean)?

Alas, I don't think insulation's going to do much good at the RF voltages that will be on it at some frequencies.

Best to keep those hands fand feet away from all elements out the back-side of the tuner when transmitting!

But, heck. It's a boat. In the water, you can fall overboard. In the boat-yard you can plunge to yer death on the ground.

On the other hand, most boats don't have an iron and ironing board, and most houses don't have a back-stay which gets hot. So you take your choices.

Make it is long as possible, and don't touch it when it's on the air.

Greg

Date: Sun, 28 Aug 1994 20:05:35 +0000
From: ihnp4.ucsd.edu!swrinde!howland.reston.ans.net!wupost!udel!

news.sprintlink.net!demon!arkas.demon.co.uk!Michael@network.ucsd.edu
Subject: SG-Smartuner
To: ham-ant@ucsd.edu

In article <vaughnwt.21.0008DAE4@olympus.net>
vaughnwt@olympus.net "Bill Vaughn" writes:

[snip]

> so that no water can enter the box. Be sure that no one is hanging on to the
> backstay while you are transmitting it really cuts down on your
> radiation,very bothersome you know. Also it would improve your radiation a lot
> if you installed a ground shoe. I don't know the technical term for this
> device (Gary Coffman probably does, sigh.) But it is a ground that attaches to
> your hull and is connected to your rf ground with a thru hull bolt. Get the
> largest one you are willing to stick on your hull. The shoe with apprx. 15 sq
> ft of ground plane gives the best performance,price ,size ratio. Good luck and
> be careful.

Once, I worked for a concern in vk that marketted these "ground shoe" devices:
we called them "E-plates". They were made of marine brass (I think), with
longitudinal ribs that ran parallel to the water line, and were fastened to the
hull by two "through-hull" bolts. We also sold ~ 2" thick copper strap for
connecting the plate to the earth point.

I've no idea how long they last in service - heard of a few acting as
parasitic electrodes (or the propeller acting as such!) due to bad earthing
practices on boats.

For backstay anti-burn devices, I've seen two solutions:

- 1) a ~10 ft length of plastic conduit slipped over the lower end. If
your txing backstay is already there, then don't step the mast *just*
for this! yuk! Cut a slot along the length of the conduit, slip over
backstay, and use conduit glue, etc. to seal up the slot.
- 2) Long, large diameter, foam cylinder slipped over
backstay - similar to that stuff they use for resting surfboards, etc.
on vehicle roof racks.

73's

--

Mike Dower
GOVEY
VK2ENG

'Quoth the raven, "Never more".' ... Poe

Date: 28 Aug 1994 21:52:13 GMT

From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!ix.netcom.com!
netnews@network.ucsd.edu

Subject: WANTED:SMALL QUAD

To: ham-ant@ucsd.edu

In <940827195911161@n9csa.com> jeff.smith@n9csa.com (Jeff Smith) writes:

>

>Hey Guys,

>I live in a antenna restricted area. Does anybody have a very small quad

>for HF or can build one for me. I am unable to build due to nerve

>problems in my hands. Desperatly need a bigger signal on the bands.

>Please help! Leave me a reply. Thanks,73's, Jeff

>

How big can "very small" be Jeff? and what are you using now?... Bill

--

Bill Brannick | brannick@ix.netcom.com

" Life is just one damned thing after another "

-- Frank Ward O'Malley

Date: 29 Aug 1994 15:10:52 GMT

From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!barrnet.net!nntp.crl.com!

jeffj@network.ucsd.edu

To: ham-ant@ucsd.edu

References <940825102119839@takeone.com>, <33iobo\$jg@ornews.intel.com>,
<33od9r\$10s@crcnis1.unl.edu>

Subject : Re: Large horizontal loop

Gary McDuffie Sr (mcduffie@unlinfo.unl.edu) wrote:

: zardo@ornews.intel.com (Jim Garver) writes:

: >I've never tried the horizontal loop but have talked to hams using them.

: >They always rave about performance and they do have good signals but they

: >are close enough that its no surprise to me. A horizontal loop is a

: >cloud warmer antenna shooting most of the energy straight up. A dipole

: >below one wavelength is also a cloud warmer. Who's got an 80 meter dipole

: >higher than 250 feet?

I was seriously considering putting up a 240 foot loop at 25 feet to
replace my 10-40 meter 51 foot G5RV. I looked at the angles of radiation
of the loop on Mininec for 10-80 meters and it blows out my G5RV on 10-40
meters which is no surprise. Great low angles of radiation on 10-20 meters

with a cloverleaf pattern (not much broadside radiation), OK low all around radiation angles on 40 meters and high angles of radiation on 80 meters. All this is better than my G5RV and plus I get 80 meters to boot. 8-) Going to feed it with ladder line in the middle of one of the legs and where it comes in my house I will use a 1:1 balun and use coax from there. 4 kids and 2 curious cats justify this. 8-)

Jeff

--

jeffj@crl.com | If work for a living and think the Republican party is your
AB6MB | friend. Ask Republican congressmen if they ever would side
| with labor over business. Then watch them laugh in your face!

End of Ham-Ant Digest V94 #287
